

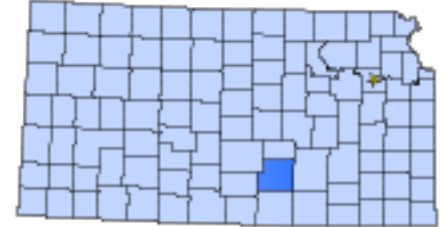


Protecting School Children from Tornadoes

Full Mitigation Best Practice Story

Sedgwick County, Kansas

The State of Kansas - On May 3, 1999, a series of strong fronts moved through Oklahoma and Kansas, producing numerous tornadoes that tore through areas of both states considered parts of "Tornado Alley." Two schools in Wichita were severely damaged. Luckily, the storms occurred after school hours and children were not present. But what if there had been children in the schools?



But even before the May 3 tornado event, the Sedgwick County Emergency Management Office looked at schools in the Wichita Public School District and asked this exact question.

The two schools had few interior areas for refuge, therefore the hallways in these schools were designated as the best place to seek refuge. But during the last tornado event, the hallways in both schools suffered extensive damage. At one, a tall boiler chimney collapsed into a hallway. If children had been present, injuries or deaths could have occurred. The information gathered by Federal, state, and local agencies from the damaged schools has led to a re-examination of the criteria used to determine places of safety.

As a result of the tornado, the damaged counties received a Presidential disaster declaration and financial assistance from FEMA. Work then began to find a way to construct tornado shelters in Kansas schools. FEMA's Hazard Mitigation Grant Program (HMGP), as well as supplemental appropriations from Congress, provided funding for damage-prevention projects after the tornadoes.

To encourage shelter construction in schools, Sedgwick County Emergency Management works closely with the Wichita Public School District to evaluate areas of refuge in the schools. Each evaluation identifies the safest areas within a school and leads to recommendations for increasing occupant safety. The school district then determines the most appropriate and feasible means of creating the shelter—constructing a new school, constructing a new addition, or retrofitting an existing area. All new approved shelter construction carried out in the Wichita program meets the criteria presented in FEMA publication 361, *Design and Construction Guidance for Community Shelters*. In addition, all shelter construction projects are inspected by a trained team that assists in determining the best location for shelter areas, identifying areas that need improvement, and determining how to resolve any structural concerns.

The success of this school shelter program is based largely on the foresight of the Wichita Public School District and the cooperative efforts of school district officials, the State of Kansas, the private sector, and the Federal government—efforts that have enabled the design and construction of economical, attractive shelters that make efficient use of valuable school space while providing for the safety and comfort of students. By following the guidance presented in FEMA 361, the participating schools have ensured that school children are afforded an unparalleled level of protection from the hazards associated with severe winds and windborne debris.

Activity/Project Location

Geographical Area: **Single County in a State**

FEMA Region: **Region VII**

State: **Kansas**

County: **Sedgwick County**

City/Community: **Wichita**

Key Activity/Project Information

Sector: **Public**
Hazard Type: **Tornado**
Activity/Project Type: **Safe Rooms/Community Shelters**
Activity/Project Start Date: **05/1999**
Activity/Project End Date: **05/2002**
Funding Source: **Hazard Mitigation Grant Program (HMGP)**
Funding Recipient: **Local Government**
Funding Recipient Name: **Sedgwick County Emergency Management**

Activity/Project Economic Analysis

Cost: **Amount Not Available**

Activity/Project Disaster Information

Mitigation Resulted From Federal
Disaster? **Unknown**
Value Tested By Disaster? **Unknown**
Repetitive Loss Property? **Unknown**

Reference URLs

Reference URL 1: http://www.fema.gov/pdf/plan/prevent/bestpractices/ks_schools_cs.pdf
Reference URL 2: <http://www.fema.gov/plan/prevent/bestpractices/casestudies.shtm>

Main Points

- The schools had few interior areas for refuge.
- Sedgwick County Emergency Management worked closely with the Wichita Public School District to evaluate areas of refuge in the schools. Each evaluation identified the safest areas within a school and lead to recommendations for increasing occupant safety.
- The success of this school shelter program is based largely on the foresight of the Wichita Public School District and the cooperative efforts of school district officials, the State of Kansas, the private sector and the Federal government.



Damaged hallway



Connection between pre-cast concrete wall panels and roof



Exterior of Park Elementary multi-purpose shelter